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New data on the distribution of Cossidae (Lepidoptera) in Mongolia

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Abstract. We recorded a new species of Cossidae – *Acossus terebrus* (Denis & Schiffermüller, 1776) – for Mongolia (Tov Aimak). We also report on the most northern habitat of the cossid genus *Gobibatyr* Yakovlev, 2004 (North-West Mongolia, Bayan-Ulegej Aimak), which shows the permeability of the Mongolian Altai Mountain Range for some elements of the Dzungarian fauna. Additionally, our sampling resulted in adding new localities to the ranges of *Catopta perunovi* Yakovlev, 2007 and *Cecryphallus nubila* (Staudinger, 1895) (first discovered in Hovd Aimak).

Introduction

The Carpenter-Moths (Lepidoptera, Cossidae) in Mongolia are relatively well known compared to their fauna in most other countries. Several articles (Daniel 1965, 1969, 1970, 1973; Yakovlev 2004, 2015a) treating the systematics and distribution of Mongolian Cossidae were published. It was established that the Cossidae fauna of Mongolia is distinct (Yakovlev and Dubatolov 2013; Yakovlev 2015b). In total, 23 species were reliably recorded; in addition, two species, *Acossus viktor* (Yakovlev, 2004) and *Cossus shmakovi* Yakovlev, 2004, were recorded from the border regions of Russia (the Republic of Tuva, the Tes-Khem River valley), so they are likely present in Mongolia as well.

It is worth noting that the Cossidae fauna of Mongolia is highly distinct based on the presence of 13 endemic species (*Catopta saldaitisi* Yakovlev, 2007, *Gobibatyr ustyuzhanini* Yakovlev, 2004, *Chingizid gobiana* (Daniel, 1970), *Ch. transaltaica* (Daniel, 1970), *Ch. kosachevi* Yakovlev, 2012, *Cossus kerzhneri* Yakovlev, 2011, *Deserticossus beketi* (Yakovlev, 2004), *D. churkini* Yakovlev, 2006, *D. mongoliana* (Daniel, 1969), *Eogystia kaszabi* (Daniel, 1965), *Kerzhnerocossus sambainu* Yakovlev, 2011, *Dyspessa saldaitisi* Yakovlev, 2011 and *Phragmataecia anikini* Yakovlev, 2011) and two endemic genera (*Kerzhnerocossus* Yakovlev, 2011 and *Chingizid* Yakovlev, 2011). All Mongolian endemics, except for *Catopta saldaitisi*, inhabit deserts and semideserts. The field study of the first author in 2015, data from other researchers and the material studied in the Hungarian Museum of Natural History (Budapest) enabled us to uncover new localities for a series of rare species and also to discover a species new for the Mongolian fauna.

Material and methods

The adult Cossidae were collected using the combined light lamp Phillips–250 W mounted above a fabric screen, battery light traps with the lamp Philips TL 8W/05 and chloroform as the killing agent.

Results

New species for Mongolian fauna

Acossus terebrus (Denis & Schiffermüller, 1776) (Figs 1A, 2) – widely distributed transpalaearctic species (Daniel 1956; Yakovlev 2007, 2011a), rather rare in most of the localities, for the first time reliably recorded in the Mongolian fauna. This discovery was expected as *A. terebrus* is reliably known from the neighboring regions of Russia (the Republic of Altai, Tuva, Buryatia, Irkutsk and Chita regions) and China (Inner Mongolia Province) (Hua et al. 1990).

Material examined: 1 ♂, Mongolia, Töv aimag, 11 km S Jargalant, 48°24.875'N; 105°50.713'E, 1320 m, 7.vii.2008, leg. Balász Benedek (Hungarian Museum of Natural History, Budapest).

New records

***Gobibatyr ustyuzhanini* Yakovlev, 2004** (Figs 1B, 2)

The genus *Gobibatyr* Yakovlev, 2004 was established for *Cossus colossus* Staudinger, 1887. *Gobibatyr colossus* (Staudinger, 1887) was reported from several localities in the Ili River valley in southeast Kazakhstan, Kyrgyzstan (the Naryn River valley) and extreme southwest of Mongolia (the Bayan-Gol River valley (right tributary of Bulgan-Gol River) in Hovd Aimak) (Yakovlev 2004, 2015a). The second species of this genus is *G. ustyuzhanini* Yakovlev, 2004, described from southwestern Mongolia (type locality − S Mongolia, Gobi-Altai Aimak, 30 km S Biger) (Yakovlev 2004). Later the distribution of *G. ustyuzhanini* in Mongolia was specified (Yakovlev 2015a). In addition to the discoveries in Mongolia, this species (given as *Cossus colossus*) was indicated (without specification of exact localities) for Qinghai, Gansu, and Ningxia Chinese Provinces (Hua et al. 1990). It was found that the larvae of *G. ustyuzhanini* Yakovlev, 2004 feed on the underground parts of *Nitraria schoberi* L. (Zygophyllaceae) (Yakovlev 2011b). The same paper gives the description of the eggs and pupae (based on exuvia). During the Russian expedition to Mongolia, M. Bush (Moscow) collected a series (3 males, 1 female) of *G. ustyuzhanini* in the northeast of Bayan-Ulegej Aimak in Mongolia on the southern bank of Achit-Nuur Lake. The exact data on the label are the following: Mongolia, Bayan-Ulegej Aimak, 65 km NW of Ulegej, S bank of Achit-Nuur lake, 49°25'52.16''N; 90°30'19.01''E, 1440 m, Bush M. legit. (coll. R.V. Yakovlev, Barnaul, Russia).

Remarks. The Mongolian Altai is a significant frontier in the distribution of insects. This conclusion is based on the distribution of Orthoptera (Sergeev 1986), Coleoptera (Kryzhanovskij 2002), Papilionoidea (Yakovlev 2011), and Cossidae (Yakovlev 2015b). The discovery of *G. ustyuzhanini* significantly extends the range of the genus *Gobibatyr*. All the previously known discoveries of *G. ustyuzhanini* were located on the south (Dzhungarian) macroslope of the Mongolian Altai, in Dzungarian and Zaaltayskaya Gobi on the territory of Hovd, Gobi-Altai and South Gobi Aimaks of Mongolia (Hovd Aimak, Janatin Dolon, 40 km N Somon Manchan, SW bank of Khar-Us nuur Lake; Hovd Aimak, Bodonchijn-Gol basin, Hundijn-Gol River valley; Hovd Aimak, 10

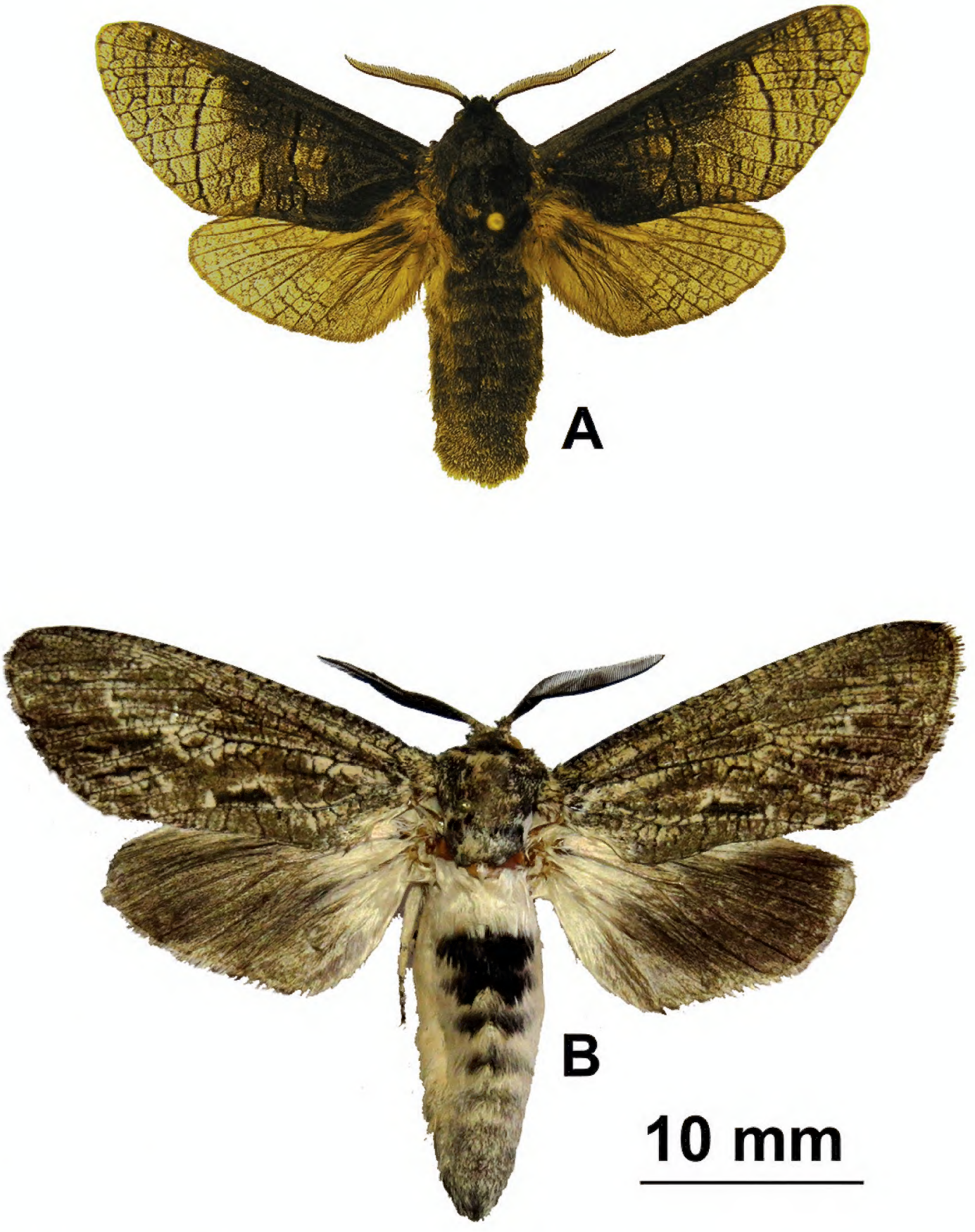

Figure 1. (**A**) *Acossus terebra* (Denis & Schiffermüller, 1776), Mongolia (Hungarian Museum of Natural History, Budapest) and (**B**) *Gobibatyr ustyuzhanini* Yakovlev, 2004, male (coll. R.V. Yakovlev, Barnaul, Russia) (Lepidoptera, Cossidae).

km SSW Somon Bulgan; Gobi-Altai Aimak, between Beger nuur and somon Beger; Gobi Altai Aimak, Baga nuur urd els, SE bank of Doroo nuur Lake; Gobi-Altai Aimak, Zachuj Gobi, 10 km N of Chatan chajrchan Mountain; Gobi-Altai Aimak, Mongolian Altai Mountains, S slope, Mogoijn-Gol Valley; Gobi-Altai Aimak, 30 km N of Biger; Southern Gobi Aimak, 70 km SW of Khan-Bogdo Somon; Southern Gobi Aimak, 50 km SSE of Noen; Southern Gobi Aimak, Bulgan

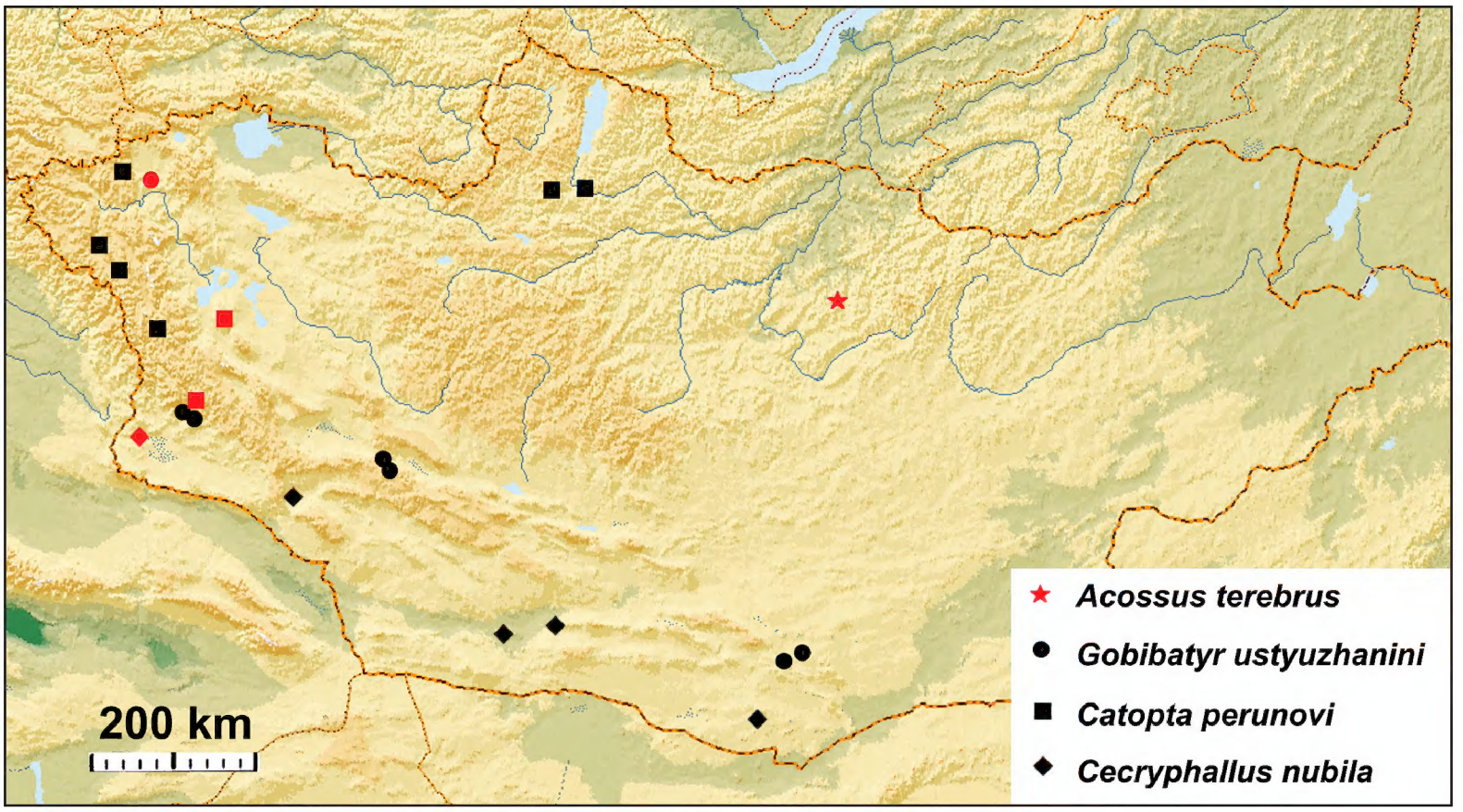

Figure 2. Distribution map of *Catopta perunovi* Yakovlev, 2007, *Gobibatyr ustyuzhanini* Yakovlev, 2004, *Acossus terebra* (Denis & Schiffermüller, 1776) and *Cecryphallus nubila* (Staudinger, 1895) in Mongolia (Lepidoptera, Cossidae). Red = new locality.

Somon, Talyn Bulay) (Yakovlev 2015a). It was previously believed that the Mongolian Altai is a barrier to the dispersal of *G. ustyuzhanini* to the north, preventing its penetration to the Great Lakes Valley (Yakovlev and Dubatolov 2013; Yakovlev 2015b).

Catopta perunovi Yakovlev, 2007 (Fig. 2)

The species was described from the material from Russia, Altai Rep., Ongudai. It was recorded in several localities of northwestern Mongolia on the territory of Chovsgol and Bayan-Ulegei Aimaks (Yakovlev 2015a), first reliably recorded in Hovd Aimak.

Material examined: 8 ♂, W Mongolia, Hovd Aimak, Dzun-Dzhargalant-Khairkhan, Ar-Shatyn-Gol River Valley (47°44'N; 92°27'E), 2130 m, 26.vi.2015., leg. R. Yakovlev; 1 ♂, SW Mongolia, Hovd Aimak, Mongolian Altai (S slope) Bodonchin-Gol basin, Khondijn-Gol Valley, (46°08'N; 92°30'E), h = 1750 m, 27.vi.2015. leg. R. Yakovlev (coll. R.V. Yakovlev, Barnaul).

Cecryphallus nubila (Staudinger, 1895) (Fig. 2)

The species was described from Kaschgar [northwestern China, Tura], widespread in southern Kazakhstan, Kirgiziya, southern Mongolia (Gobi-Altai, Bayan-Khongor and South-Gobi Aimaks), Uzbekistan, Tadzhikistan, Azerbaijan, southern Armenia, Turkmenistan, northern Iran, and Xinjiang, China (Yakovlev 2015a). First discovered in Hovd Aimak.

Material examined: 1 ♂, SW Mongolia, Hovd Aimak, Dzhungarian Gobi Desert, S slope Barangijn-Nuruu Mts., 3 km S Barangijn-Tataal kuduk, (45°53'N; 91°19'E), 1300 m, 3.vii.2015, leg. R. Yakovlev (coll. R.V. Yakovlev, Barnaul).

Conclusion

At present 24 Cossidae species from 13 genera have been reliably recorded in Mongolia. The distribution of the genus *Gobibatyr* Yakovlev, 2004 has been significantly extended (the northern border of the habitat has been shifted by 450 kilometers). Despite numerous past efforts focused on the study of the Mongolian Cossidae, it appears that much can still be discovered, especially in the southeast of the country, from where little material is known.

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